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ABSTRACT

Instruction is affected in the People's Republic of China and in the United States in a world of changing technology. This paper examines methods used in the two countries, identifies common problems faced by both countries, and suggests alternative approaches for meeting technological challenges. The paper explains that both countries face problems such as a lack of qualified teachers, an increasing number of high-risk students in middle schools, students' lack of interest in studying subjects such as mathematics, and the growing number of unprepared students. The paper reviews studies that have been conducted and discusses findings relative to investigation of class size, lesson planning and teaching methods, class activities, problem solving, and entrance requirements. Contains 23 references. (Author/BT)

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A Comparison of Education in China and the United States

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Abstract

In the world of changing technology instruction is affected in the People's Republic of China and the United States. This paper examines methods used in the two countries, addresses common problems facing both countries and suggest alternative approaches for meeting these challenges. Problems facing both countries include a lack of qualified teachers, the increasing number of high-risk students in middle schools, the students' lack of interest in studying subjects such as mathematics and the growing number of unprepared students. Studies have been conducted and will be discussed relative to investigation of class size, lesson planning and teaching methods, class activities, problem solving, and entrance requirements.

A Comparison of Education in China and the United States

Background - China

During the Cultural Revolution which began in 1966, China shut down its universities for long periods and sent students and scholars to work in fields and factories (Hertling, 1997). In 1978 China was one of the poorest countries, with 80% of the population living on incomes of less than $1 a day and only one third of all adults able to read or write. China began its ambitious economic reform in 1978 and as a result, illiteracy has fallen to below 10% of the population. The new People's Republic of China government immediately embarked on rebuilding the Chinese economy (World Bank, 1990).

In 1980 China adopted the academic degree system from the West and by 1988, their GNP per capita was US $330 (World Bank, 1990). In 1996 only about 3 percent of China's students – who score well on their entrance examinations or who can afford fees that are two or three times the basic tuition – are able to study in a university's English-language department (Hertling, 1996).

Bracey (1996) states "the education of most Chinese is very poor and the hope of the People's Republic of China is to attain universal ninth-grade education sometime around 2000. Yet the Chinese parents in a study by Stevenson (1992) had attended school on average more than 11 years." (P. 104-117).

Background - United States

Stevenson & Stigler (1992) say "American schools are in trouble". Lawson (1996) in his report advised the U. S. government that "the most important reason for United States participation in international studies of education is to improve understanding of our

education system, that is, as an extension of and complement to studies within the United States." (p. 20-34).

General Background

Comparative education has matured to a global perspective having begun from an English based perspective. Its scope is now extensive and includes history, sociology and literature. Comparative studies continue to concentrate on the dependence of connections with educational structures, language, ethnicities and curriculum.

Wragg (1996) says "first-hand classroom observation is more useful in determining how various techniques stand internationally because more is learned about the actual performance and its consequences. Pacific Rim math education produces better scores but it also undercuts imagination, limiting students as adults." (p. 120). Teachers stay with the same students for three years in China while in the United States most teachers change each year (Stevenson and Lee, 1989).

Bray and Thomas (1995) indicated the need for a guide to logically complete a comparative education analysis. This guide could be three-dimensional. First, could be geographic and location to include the individual, classroom, school, to the world region level. Second could be groups not related to location such as ethnic, age, religious, gender and the overall population. Third would look at aspects of education and society, such as curriculum, teaching methods, finances, management structures, political change, and labor markets.

Academic Programs - China

Through review of various materials, the following information was collected

regarding academic programs in China. *High school* graduates enroll in a professional training program taking regular classes for two to three years. The graduates usually return to their original work units upon completion of their training programs. High school graduates and a small number of individuals with work experience are enrolled in the *undergraduate* program. The duration of this program is four to five years, with a bachelor's degree awarded upon successful completion of the classes.

Master's degree programs are the next step, which awards a master's degree upon the completion of all course requirements and successful defense of a thesis (usually completed in two to three years). The graduates are assigned by the government to teach at a university. The *Ph.D.* programs are found mainly in the leading institutions of higher education under the Chinese State Education Commission (CSEC). After completion of their studies, the graduates are assigned to teach at a university or work in one of the leading research institutions in China.

Wang (1996) states that "educationally, China's urban and rural schools are divided into two major categories *keypoint schools* and *ordinary schools* (or *common schools*). *Keypoint schools* enroll about 4% of the secondary population...and the students are given many privileges. With their tremendous advantages over common schools, *keypoint school* graduates account for 95% of the university admissions from their graduating classes." (p. 238).

Children are expected to advance from elementary to junior middle school for a total of nine years required. The competition for admission to the most reputable school is intense at all levels. Amazingly, scores of 98 out of 100 on Chinese and math exams are

required in many cases. Of the students who finish junior middle school, only about 30% will have an opportunity to go on to senior high school.

"Classes in the private schools (Krebs, 1997) have an average of thirty-five students while public schools have fifty-five to sixty-five. English is taught in public elementary schools and the better public schools have computers. Most teachers are assigned to schools by the government. Therefore, hiring and firing is complicated due to the government's involvement." (p. 332). Enrollment for the first nine years of school (Krebs, 1997) is higher than most other lower income countries, with more than 98.4% of the primary school 6-11 age group and over 78.4% of the lower secondary school 12-15 age group enrolled.

"Chinese educators deplore China's higher education system for its inability to produce the critical thinkers and problem solvers needed to sustain a rapidly growing economy. Systemic problems include the lost of the best teachers to industry and research and an outdated focus on narrow vocational training. Only about one third of students who leave for training abroad return to China."(Hertling, 1996).

Academic Programs - United States

According to Stevenson & Lee (1989), United States schools have a relatively low number of instructional days (180) but a relatively high number of hours of instruction (5.6) per day. The average hours of instruction per year (1,003) exceeds most other countries. The United States has shorter school days than thirteen out of 20 other countries researched.

"The United States (Wang, 1996) does not have a national curriculum and is unlikely to have one soon. States, districts and even individual schools establish their own curriculums. They decide the way subjects are organized, the rate at which topics are

presented, and the frequency with which they are discussed." (p. 238).

All children in the United States are required to attend twelve years of formal schooling. Home-based education is starting to grow at a faster pace due, in part, to the dissatisfaction of parents with their local schools. Private schools (including church based) in the United States continue to be an alternative for many families who have the funds to cover the tuition for their children to attend. As this area grows, entrance requirements are changing to accommodate the best and brightest students.

To complicate the structure even more, in the United States, many students are placed in special classes based on their abilities or special needs. Many educators do not support this "tracking" of students. Interestingly this format is not used in Pacific Rim schools, such as in China. Students are all placed together based on their age levels and not separated by their abilities or special needs.

Comparisons

The World Bank in its report (1990) indicated "any country that wants to compete in the world economy needs a comprehensive education policy that includes spending on higher education, science and technology, and professional training."

China has a more intense mathematics course at the middle school level than the United States. Their schools place more emphasis on problem solving and they hold mathematical ability in high esteem, as noted in the video, *The Polished Stones* (Stevenson & Lee, 1989). American schools tend to simply move a student who does not work as hard to a less demanding class (Jiang & Eggleton, 1995). Looking at percentages of the primary curriculum devoted to mathematics and science by world region and historical period, one

would find an increase in 1920-1944 from 16.1% to 19.2% in 1970-1986 in Asia as compared in 1920-1944 of 15.6% to 18.5% in 1970-1986 in The West (Western Europe, North American, Australia and New Zealand) (Kamens & Benavot, 1992).

A disagreement was found between Bracey (1993) and Stevenson (1993). Stevenson's research sample was selected from "five metropolitan areas: Minneapolis, Chicago, Sendai, Beijing and Taipai". His comparison of urban students was limited and was vulnerable to potential bias in student selection. Bracey (1993) states "the work of Harold Stevenson and his colleagues is particularly flawed, and in some obvious ways. For example, in his study of Chicago and Beijing students, the Chicago sample was weighted toward low-income families, it contained 29% Black and Hispanic students and 20% of the students did not speak English at home."

In other studies it was found "the average score of the American student sample in 1986 was 54.8, with a standard deviation of 16.7. The Chinese sample was 55.73 with a standard deviation of 14.77." (Postlethwaite, 1988). Stevenson and Stigler (1992) stated "American students have faired badly in international studies of achievement in science. This difference between United States students and Chinese students is called the *learning gap*." (p. 50).

Bracey (1993) expresses "at the risk of sounding as though I am arguing against standards, I must say that I disagree with virtually everything in Harold Stevenson's article. My disagreement arises mostly from claims about his feelings that simply aren't true and from the deep flaws in his research." (p. 66).

Student achievement is usually an indication of time spent in instruction, since it

reflects the students access to learning opportunities. Quality as well as quantity of classroom instruction will determine the worth of time students spend in formal instruction. Here measurement of formal instruction is the average hours of instruction per day and days per year. Formal instruction is further defined as regular interaction between a teacher and a group of students.

Another area to investigate is how students occupy their time outside of school as that can affect their academic performance. Homework is a form of practice, parent supervised or self-directed study and many educators believe that it will improve student achievement. Practical studies conducted on the subject, confirm time spent on homework is positively related to academic achievement (UNESCO, 1998). One shortcoming in the statistical information involves the average number of hours spent on homework that cannot identify the quality of the homework assigned or the effort and care students make in accomplishing it. For many students, homework must compete for their attention with television or extra curricular activities. If students spend exorbitant hours watching television, participating in sports or other extra curricular activities, little time is left to focus on academic studies. In investigating this area of concern, two measurements were used – the percentage of students who claim to do 2 hours or more of homework daily, and the percentage of students who report watching television one hour or less daily. UNESCO (1998) shows the percentage of China (35%) of students who watched television 2 hours or more daily, was 49% lower than that of the United States (84%).

In researching for this paper, I read numerous articles and reviewed many books, all giving me the same information. Problems facing China and the United States include

a lack of qualified mathematics and computer science teachers; the increasing number of high-risk students in junior high school; the students' lack of interest in studying mathematics; and the growing number of ill-prepared students in both countries. We must engage in a close review of the research methodogy used to help us determine whether to accept the findings of any comparative studies.

Conclusion

The field of comparative education which recognizes world region and cross national studies is a place to start. The strength of studies on a multilevel basis at the upper levels of the hierarchy (state, country and world region) can offer a basis where more specific details can be included. These bases provide better interpretation, greater understanding and reduce the danger of overwhelming researchers and their audiences with masses of detail.

It is refreshing to hear of individuals such as businessman Yang Bo (Yang, 1997). In China he has initiated a program to education children from poor areas. Sixty students from 14 provinces in 1995 went to Beijing to study at key middle schools. The program has been so successful that in 1997, he will select 200 students to study. This type of involvement by non-educators helps the educational system of any country.

In the video, *The Polished Stones*, (Stevenson & Lee, 1989) techniques to improve education and learning were obvious. In Pacific Rim countries, such as Japan, Taiwan and China, errors are used as practice for improvement rather than to show weakness or embarrass students. There is respect for the individual and no public embarrassment is seen. These countries are always conscious of the value of "saving face". They encourage and

build confidence by deemphasizing differences and concentrating on accomplishments and respect of others.

Hopefully, this paper has afforded the reader with a profusion of ideas. Several areas need further research, namely upgrading current educational options and training teachers to better meet the needs of the rapidly changing world. There will always be controversies as to the best approach for meeting the challenges of education in a world of change. In my opinion, we must continue to develop instruction methods that will place our young people in a better position for the future, such as home-based education using the World Wide Web. It is critical that we provide teachers with alternate forms of instruction in the classroom, while at the same time recognizing the impact of the changing technology on them. Finally, we must be open to consideration of methods used in other countries and willing to make changes to meet the challenges of the global market thus providing our children with the tools for success.

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